

# O'HARA WATERSHED RESTORATION

9706000

## SHORT DESCRIPTION:

This project will involve maintenance and improvement of existing instream structures in a small stream (O'Hara Creek, Selway River subbasin, Clearwater River basin) supporting at-risk stocks of spring chinook salmon and steelhead trout spawning and rearing. It will also involve extensive road obliteration within the watershed.

## SPONSOR/CONTRACTOR: USFS

USFS

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## GOALS

### GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Increases run sizes or populations, Provides needed habitat protection, Basinwide, Education

### WATERSHED:

Assessment/action plan development, Coordination, Implementation, Research, M&E

### ANADROMOUS FISH:

Hydro ops, mainstem passage, construction, Production, Research, M&E

### RESIDENT FISH:

Habitat, Production, Research, M&E

### NPPC PROGRAM MEASURE:

no response

### RELATION TO MEASURE:

Reduction in sediment sources (i.e. roads) and improvement in existing instream structures will result in less deposited sediment in lower O'Hara Creek. Reduction in deposited sediment should result in improved spawning success and smolt survival.

### TARGET STOCK

### LIFE STAGE

### MGMT CODE (see below)

Bull Trout

N/A

N/A

Westslope Cutthroat Trout

N/A

N/A

Snake River Steelhead Trout

Juvenile, Adult

N, P

Snake River Spring Chinook

Juvenile, Adult

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## BACKGROUND

### Stream name:

O'Hara Creek

### Stream miles affected:

10

### Project is an office site only

### LAND AREA INFORMATION

#### Subbasin:

Clearwater River, Selway River

#### Land ownership:

Public

#### Acres affected:

30

#### Habitat types:

Fifth order stream with representative habitat types (pools, riffles, glides, etc. ).

## **HISTORY:**

the actual construction of the instream structures. Work was completed in 1992 and included establishment of a self-guided tour, brochures to guide the tour, and a large interpretive sign at the downstream end of the project area. The Nez Perce Forest contributed \$2500.00 to this effort and recieved \$1300.00 from partners in actual contributions.

## **BIOLOGICAL RESULTS ACHIEVED:**

The enhanced area was surveyed for habitat and fish prior to implemetation of the project in 1989 and every year thereafter until 1992. Results indicated that pool:riffle ration was increased from 3:97 to 53:47, numbers of acting debris increased from 27 pieces/square meter to 80 pieces/square meter, overwinter habitat increased from 0 to 132 square meters, glide/pool habitat increased from 221 square meters to 2,617 square meters, and side channel habitat increased from 710 square meters to 1,563 square meters. Fish densities in November were estimated at 0/100 square meters to 10.9 juvenile steelhead/100 square meters and 5.4 juvenile chinook salmon/100 square meters after project implementation. Anchor ice formation was noted prior to project implementation and was not noted post project implementation.

It was generally noted, however, that levels of deposited sediment generally did not improve following establishment of stream structures. Stream structures by themselves generally do not result in reduction in deposited sediment unless they are specifically designed for this purpose. Structures constructed for this project were designed to create pool habitat, increase cover, increase stream depth, and increase habitat diversity in a stream reach consisting mostly of low gradient riffles. Establishment of such structures is inconsistent with increasing routing of deposited sediment out of the reach. In the absence of other improvements in watershed condition, decreases in deposited sediment were not to be expected under this project scenario.

## **PROJECT REPORTS AND PAPERS:**

Technical and project reports including the above monitoring results, along with all origil data sheets and analysis, are available at the Selway Ranger District office, Nez Perce National Forest. No technical reports have been peer reviewed or published, however.

## **ADAPTIVE MANAGEMENT IMPLICATIONS:**

management implicantions for this project and project monitoring include generally accepted beliefs about fish response to habitat modification or improvement, although an actual increase in fish produced in this watershed as a result of the project has not been documented. More importantly, these structures did not improve levels of deposited sediment; the management implication for this facet of stream habitat improvement is that improvement in watershed condition, concurrent with structures specifically designed to rout sediment, is necessary for improvement in this condition.

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## **PURPOSE AND METHODS**

### **SPECIFIC MEASUREABLE OBJECTIVES:**

Cobble embeddedness, percent surface fines, fines within spawning habitat, pool: riffle ratio, relative densities of fish throughout the year, and numbers of returning adult anadromous spawners from year to year.

### **BIOLOGICAL NEED:**

The biological need for this project is focused around the relatrive size and position of the O'Hara Creek watershed in the Selway River subbasin in addition to its existing condition. It is the only tributary large enough to support spring chinook salmon spawning and rearing in the lower sixteen miles of the Selway River. It is known to support spring chinook salmon and steelhead trout, limited presumably by excessive levels of deposited sediment and amount of habitat available.

The Selway River supports one of the strongest populations of wild B-run steelhead trout in the Clearwater River and has never been supplemented with hatchery stocks. The Selway River also supports a significant population of wild spring chinook salmon, with O'Hara Creek providing the first potential spawning habitat for both species on their way up the Selway River.

The O'Hara Creek watershed has been affected by road construction and timber harvest, which has resulted in high sediment yields in certain portions of the drainage and high road densities. Current high levels of deposited sediment in the lower portion of the watershed have been attributed in part to poor watershed condition. We believe the potential for watershed and stream recovery to be high, however, due to the morphology of the watershed and the fact that large portions of the watershed remain

unaffected by land-disturbing activities. We believe that improvement in this watershed would result in significant improvement of fish habitat and subsequent improvement in survivability of juvenile fish.

We also believe this project will provide benefits for resident fish and wildlife. Westslope cutthroat trout, which comprise a fluvial population in the Selway River of considerable national significance, would benefit from the same improvements as anadromous fish. Bull trout have not been documented in O'Hara Creek but given improvement in habitat condition may choose to spawn and rear in this stream. Elk, deer, predators such as wolves, mountain lions, and bears, and any other wildlife species affected by road construction, increased human access, and road maintenance, would benefit from road obliteration.

#### **HYPOTHESIS TO BE TESTED:**

Does improvement in watershed condition from road obliteration result in reduced sediment deposition in downstream areas? Does improvement and maintenance of existing structures result in more sediment routed out of the system and improvement in percent surface fines and cobble embeddedness? Do potential decreases in percent surface fines and cobble embeddedness result in higher densities of fish and increased numbers of anadromous and resident spawners in O'Hara Creek?

#### **ALTERNATIVE APPROACHES:**

Alternatives to the proposed action have not been developed.

#### **JUSTIFICATION FOR PLANNING:**

N/A

#### **METHODS:**

1) Materials to be used for the instream portion of this project include an excavator combined with manual labor to modify, maintain, or improve existing structures. No new materials will be used at the site since ample boulders and large cedars are already available on-site. An array of possible structure modifications is being considered, based on sound hydrological and biological principles for maintaining the above improved habitat variables while providing the stream greater ability to move sediment. The constructed side-channel will not be altered.

Materials and techniques for road obliteration include standard heavy equipment used for road construction such as backhoes and dozers. Native shrubs and trees would be planted following all ground disturbance to hasten the road obliteration process. Road obliteration would include full recontouring so the past existence of the road will be difficult or impossible to detect several years post project implementation.

2) Statistical analysis of monitoring data would include standard non-parametric assessment of post project monitoring data to detect changes in deposited sediment levels in the project area. Wolman pebble counts would be performed as a means of assessing shifts in D50 and D84 of substrate size classes from data collected from various habitat types. Mean cobble embeddedness would be compared from year to year using multiple analysis of variance (MANOVA) techniques to assess both long and short term trends in deposited sediment. Standard electrofishing or snorkel techniques would be employed to assess relative abundance of fish at the site. Numbers of adult spawners and redds would be counted each year and documented.

3) No hatchery outplantings of hatchery fish are currently proposed, but we would consider this an option depending on other agency involvement (i.e. Idaho Department of Fish and Game, Nez Perce Tribe). This would be an option for chinook salmon only as the steelhead in the Selway River have never been supplemented with hatchery fish. Species affected by this project include chinook salmon, steelhead trout, westslope cutthroat trout, and possibly bull trout. Relative densities of all these species will be monitored following project implementation.

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## **PLANNED ACTIVITIES**

#### **SCHEDULE:**

<u>Planning Phase</u>	<u>Start</u> October 1996	<u>End</u> June 2002	<u>Subcontractor</u>
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<u>Task</u> 1996- USFS fish biologists, hydrologists, and engineers plan and develop project specifications (funded entirely by the USFS). Environmental analysis initiated.			
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1997- Environmental analysis completed; instream structure work and road obliteration contracts developed and let; construction and obliteration may be completed this year. BPA funds needed for this phase			
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1998- Instream structure and road obliteration completed. Vegetation planting of obliterated areas, first year sediment monitoring of structure site to commence. Rewrite O'Hara self-guided tour and interp. Sign to include more recent information on project and fish ecology. BPA and USFS funds needed here.

1999- Sediment and fish monitoring continued; peer review and publication of report from first two years' data if appropriate. BPA and USFS funds needed here.

2000 and beyond- Continued monitoring of the project. USFS will fund.

**Implementation Phase**    **Start** October 1996                      **End** August 1998                      **Subcontractor**

**Task** Planning, Project Design, NEPA, Project Construction

**O&M Phase**                      **Start** June 1998                      **End** 2002                      **Subcontractor**

**Task** Planting, Monitoring, Educational Provisions

#### **PROJECT COMPLETION DATE:**

2002

#### **CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:**

None. The project is partly designed to reduce risk through obliteration of roads at high risk for mass failure.

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## **OUTCOMES, MONITORING AND EVALUATION**

### **SUMMARY OF EXPECTED OUTCOMES**

#### **Present utilization and conservation potential of target population or area:**

Both spring chinook salmon and steelhead trout currently use lower O'Hara Creek for spawning and rearing. The utilization potential is therefore high in this watershed.

#### **Assumed historic status of utilization and conservation potential:**

Current numbers of adults returning to O'Hara Creek are assumed to be lower than historic levels. We have assumed that this watershed historically supported genetically-distinct subpopulations of both spring chinook and steelhead trout.

#### **Long term expected utilization and conservation potential for target population or habitat:**

Desired adult returns for both species exceeding 100 fish.

#### **Indirect biological or environmental changes:**

None not already discussed.

#### **Physical products:**

Fifteen to twenty perpendicular or downstream rock weirs re-worked into fifteen Rosgen structures (more efficient at transporting deposited sediment while increasing pools and habitat complexity), ten to thirty pieces of large woody debris (large cedar logs dropped into stream) added to channel, five to ten miles of full road obliteration, five to ten miles partial road obliteration, 30 acres planted and seeded.

#### **Environmental attributes affected by the project:**

Increase in pool:riffle ratio, decrease in cobble embeddedness and percent surface fines, increase in amount of large woody debris, decreased sediment yield throughout the basin, increase in spawning habitat amount and quality.

#### **Changes assumed or expected for affected environmental attributes:**

Changes are described above under H.

**Measure of attribute changes:**

Current levels of cobble embeddedness range from 40 to 70 percent. Expect decreases to 30 percent or better

**Assessment of effects on project outcomes of critical uncertainty:**

A long-term monitoring station has been established in lower O'Hara Creek since 1988. We therefore will have pre- and post-project data, which include elements such as cobble embeddedness, pool:riffle ratio, amount of woody debris, fish densities, and channel widths and depths.

**Information products:**

Monitoring the project will provide an assessment of the effectiveness of Rosgen structures at flushing excess sediment while providing for habitat complexity. Will also provide information on the effectiveness of road obliteration and if densities of fish increase following project completion.

**MONITORING APPROACH**

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**Provisions to monitor population status or habitat quality:**

Data from pre-established monitoring stations include fish densities.

**Data analysis and evaluation:**

See above.

**Information feed back to management decisions:**

If data show that the project does not achieve its overall goal of sediment reduction in lower O'Hara Creek, alternative actions to achieve this goal will be considered.

**Critical uncertainties affecting project's outcomes:**

Through monitoring levels of suspended sediment during project implementation. Increases in sediment yield following road obliteration may occur, which should be followed by an overall reduction in sediment yield.

## EVALUATION

Request monitoring data and assess numbers of adults returning to the Clearwater River basin.

### Incorporating new information regarding uncertainties:

Since the goal of the project is sediment reduction, and since the main risk involves temporary increases in sediment, the project will be altered to achieve the goal.

### Increasing public awareness of F&W activities:

The interpretive walk and brochure along lower O'Hara Creek, updated to provide new information concerning structure improve

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## RELATIONSHIPS

### RELATED BPA PROJECT

### RELATIONSHIP

Related projects include include various watershed improvement projects funded by the U.S. Forest Service other than the road obliteration specified under this proposal. Also included is a visitor information program designed to educate the public about fish, stream ecology, and watershed restoration. This program has been funded in the past under a challenge cost share scenario including the Nez Perce National Forest, Idaho Department of Fish and Game, and Trout Unlimited. It includes a self-guided tour, sign, and brochure. This site is located near a heavily-used campground along the Selway River.

### OPPORTUNITIES FOR COOPERATION:

The NEPA analysis for this project would be tiered to a larger analysis involving O'Hara Creek and other watersheds in the vicinity. As with any project, there is uncertainty concerning the success of the NEPA process for timely completion. The Forest is planning to issue a Notice of Intent for this area by the end of FY96, with subsequent EA/EIS completed in the months thereafter. The Forest has a history of cooperation from other agencies and groups with this project. We therefore believe the potential for cooperation to be high.

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## COSTS AND FTE

1997 Planned: \$25,000

### FUTURE FUNDING NEEDS:

### PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$10,000	0%	70%	30%
1999	\$10,000	0%	50%	50%
2000	\$5,000	0%	10%	90%

<u>FY</u>	<u>OTHER FUNDING SOURCE</u>	<u>AMOUNT</u>	<u>IN-KIND VALUE</u>
1998	USFS	\$95,000	
1999	USFS	\$10,000	
2000	USFS	\$5,000	

### OTHER NON-FINANCIAL SUPPORTERS:

Future partners may include Trout Unlimited, Idaho Department of Fish and Game, and the Nez Perce Tribe. The Nez Perce Tribe has designated O'Hara Creek as part of a large-scale spring and summer chinook salmon supplementation program. The Tribe annually stocks O'Hara Creek with spring chinook pre-smolts.

**LONGER TERM COSTS:** N/A

**1997 OVERHEAD PERCENT:** 10%

**HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:**

[Overhead % not provided so BPA appended older data.]

**CONTRACTOR FTE:** 3

**SUBCONTRACTOR FTE:** 0

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